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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,619	04/05/2006	Shohji Ohtsubo	2006_0469A	1858

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WENDEROTH, LIND & PONACK L.L.P.
2033 K. STREET, NW
SUITE 800
WASHINGTON, DC 20006

EXAMINER	
MAMO, ELIAS	
ART UNIT	PAPER NUMBER
2184	
MAIL DATE	DELIVERY MODE
11/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,619	OHTSUBO ET AL.	
	Examiner	Art Unit	
	ELIAS MAMO	2184	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 8-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 8-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04/05/2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/15/2008 has been entered.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the transfer request specification unit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of

the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniai et al. (US 5,438,665), herein after referred to as Taniai et al. '665.

Referring to **claim 1,** Taniai et al. '665 teaches, as claimed, a recording device control apparatus (i.e.-direct memory access controller, col. 2, line 49) that successively receives transfer requests and controls transfer of data relating to the transfer requests to and from a recording device (i.e.-disk unit, col. 3, line 50) each transfer request including (i) area information that shows an area that is a transfer destination or a transfer source in the recording device and (ii) type information for specifying a transfer data type (i.e.-transfer data type is included in DMA transfer, col. 1, lines 43-47), the recording device control apparatus comprising: a reception unit (i.e.-request handling means, col. 2, line 59) operable to receive the transfer requests; a queue management unit operable to manage a processing order of the received transfer requests (i.e.-

transfer control information setting means generates transfer control information according to transfer request priority, col. 3, lines 1-10); a transfer criterion judgment unit operable to determine which of the received transfer requests to set as a focus request based on a predetermined transfer criterion (i.e.-transfer control circuit generates data transfer request based on transfer control information, col. 1, lines 20-25); a management information judgment unit (i.e.-transfer management circuit determines the execution of data transfer according to the transfer control information and in conformity with the transfer request, col. 5 lines 45 and 55); a transfer request specification unit (i.e.-request handling means, col. 2, lines 59 and transfer control circuit, col. 4, lines 20-21); and a transfer unit operable to transfer the data specified by the transfer request specification unit (i.e.-transfer execution means executes the data transfer in accordance with transfer control information, col. 3, lines 11-15).

However, Taniai et al. '665 does not explicitly teach where the management information judgment unit is operable to judge whether or not the focus request is a transfer request for management information, and on judging that the focus request is a transfer request for management information, judge with reference to the processing order whether or not a transfer request for management information exists before the focus request; and where the transfer request reception unit is operable to: (1) judge with reference to the processing order whether or not a transfer request having type information identical to the type information of the focus request exists before the focus request; (2) specify data relating to the focus request as a transfer target when the management information judgment unit judges that no transfer request for management information exists before the focus request; and (3) set a transfer request for management information closest to the focus transfer request, when the management information judgment unit judges that a transfer request for management information exists before the focus request.

On the other hand, Johnson '315 teaches a method to judge whether or not the focus request is a transfer request for management information, and on judging that the focus request is a transfer request for management information, judge with reference to the processing order whether or not a transfer request for management information

exists before the focus request (i.e.-determining the priority associated with the I/O request, where the determined priority is related to a priority associated with the application that generated the I/O request, col. 1, lines 53-54, and 59-61); and where the transfer request reception unit is operable to: (1) judge with reference to the processing order whether or not a transfer request having type information identical to the type information of the focus request exists before the focus request (i.e.-judge if the priority level of the I/O request is the first priority and defer transmission of the I/O request if it is determined that the I/O request has second priority, col. 1, 55-58); (2) specify data relating to the focus request as a transfer target when the management information judgment unit judges that no transfer request for management information exists before the focus request (Note: if there are no first priority request, the I/O request with second priority is set as a first priority, col. 2, lines 9-12); and (3) set a transfer request for management information closest to the focus transfer request, when the management information judgment unit judges that a transfer request for management information exists before the focus request (Note: if there are first priority I/O requests, then set the transmit the I/O requests sequentially after one another, col. 3, lines 30-38).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the management information judgment unit of Taniai et al. ‘665 so that it can be operable to judge whether or not the focus request is a transfer request for management information, and on judging that the focus request is a transfer request for management information, judge with reference to the processing order whether or not a transfer request for management information exists before the focus request; and modify the transfer request reception unit so that it can be operable to: (1) judge with reference to the processing order whether or not a transfer request having type information identical to the type information of the focus request exists before the focus request; (2) specify data relating to the focus request as a transfer target when the management information judgment unit judges that no transfer request for management information exists before the focus request; and (3) set a transfer request for management information closest to the focus transfer request, when the management

information judgment unit judges that a transfer request for management information exists before the focus request, as taught by Johnson '315. The motivation for doing so would have been in order to provide an improved technique for handling I/O requests for different applications executing within a host that is sensitive to the importance of the I/O requests generated from different applications (col. 1, lines 43-46).

As to **claim 2,** Taniai et al. "'665 teaches the recording device control apparatus of claim 1, wherein the management information judgment unit is operable to judge with reference to the processing order whether or not a transfer request exists before the focus request for management information that includes area information identical to the area information of the focus request on judging that the focus request is a transfer request for management information (i.e.-address information is part of transfer control information, and beforehand it generates the control information necessary for executing the next data transfer, col. 4, lines 39-41 and 53-57), and when the arrangement information judgment unit judges that no transfer request for management information that includes area information identical to the area information of the focus request exists before the focus request, the transfer request specification unit is operable to send a judgment result to a request judgment unit (Note: since generation for the next transfer request is based on present transfer control information, if the address is not valid, then transfer control circuit does not generate transfer control information, col. 4, lines 30-33).

As to **claim 3,** Taniai et al. '665 teaches the recording device control apparatus of claim 1, wherein: the reception unit is operable to receive a first transfer request and a second transfer request; and the transfer criterion judgment unit is operable to judge whether or not the first transfer request is to be set as the focus request and is operable to determine which of the transfer requests to set as the target request, based on one of (a) whether or not the type information of the first transfer request and the type information of the second transfer request are different from each other, and (b) a result

of comparing a priority level of the first transfer request and a priority level of the second transfer request (col. 2, line 59 to col.3, line 10).

As to **claim 4,** Taniai et al. '665 teaches the recording device control apparatus of claim 1, wherein: the reception unit is operable to receive a first transfer request and a second transfer request; and the transfer criterion judgment unit is operable to judge that neither of the first transfer request and the second transfer request is to be set as the focus request, and is operable to determine that a transfer request following the first transfer request is to be set as the focus request, when the type information of the first transfer request and the type information of the second transfer request are different from each other and the priority level of the second transfer request is higher than the priority level of the first transfer request (Note: transfer control information setting means generates first and second control information based on priority, col. 3, line 6).

As to **claim 5,** Taniai et al. '665 in view of Johnson '315 teach the recording device control apparatus of claim 1, wherein the transfer request specification unit is operable to specify the data relating to the focus request as the transfer request when no transfer request having type information identical to the type information of the focus request exists before the focus request (Note: Johnson teaches, if there are no first priority request, the I/O request with second priority is set as a first priority, col. 2, lines 9-12).

As to **claim 8,** Taniai et al. '665 teaches the recording device control apparatus of claim 1, wherein the transfer request specification unit is further operable to set the transfer request closest to the focus request and that has type information identical to the type information of the focus request, as the focus request, on judging that a transfer request having type information identical to the type information of the focus request exists before the focus request (col. 5, lines 20-26).

As to **claim 9,** Taniai et al. '665 teaches the recording device control apparatus of claim 1, wherein: the management information judgment unit is further operable to judge with reference to the processing order whether or not a transfer request for management information exists after the focus request (col. 5, line 64-col. 6, line 5) on judging that the focus request is a transfer request for management information; and the transfer request specification unit is further operable to exclude the focus request from being a transfer target when the management information judgment unit judges that a transfer request for management information exists after the focus request (Note: since generation for the next transfer request is based on present transfer control information, if the address is not valid, then transfer control circuit does not generate transfer control information, col. 4, lines 30-33).

As to **claim 10,** Taniai et al. '665 teaches the recording device control apparatus of claim 9, wherein: the reception unit is further operable to receive an omission instruction that instructs omission of transfer of redundant management information; and the transfer request specification unit is operable to exclude the focus request from being a transfer target only if the reception unit receives the omission instruction (Note: the transfer control information is read out by an instruction supplied from a transfer management circuit provided in the transfer execution unit, col. 5, lines 41-45).

Regarding to **claim 11,** Taniai et al. '665 teaches, as claimed, a recording device control method for successively receiving transfer requests and controlling transfer of data relating to the transfer requests to and from a recording device (i.e.- direct memory access controller, col. 2, line 49), each transfer request including (i) area information that shows an area that

is a transfer destination or a transfer source in the recording device (i.e.-transfer control information consists address information, col. 4, lines 39-41) and (ii) type information for specifying a transfer data type (i.e.-transfer data type is included in DMA transfer, col. 1, lines 43-47), the recording device control method comprising: receiving the transfer requests (i.e.-receiving a transfer request, col. 2, line 59); managing a processing order of the received transfer requests (Note: transfer control circuit manages the order of processing based on the transfer control information, col. 4, lines 34-39); determining which of the received transfer requests to set as a focus request based on a predetermined transfer criterion (i.e.-executing of next data transfer request is determined based transfer control information, col. 4, lines 53-55); and transferring the specified data (i.e.-transfer execution means executes the data transfer in accordance with transfer control information, col. 3, lines 11-15).

However, Taniai et al. '665 does not explicitly teach the step of judging whether or not the focus request is a transfer request for management information, and when the focus request is a transfer request for management information, judging with reference to the processing order whether or not a transfer request for management information exists before the focus request; judging with reference to the processing order whether or not a transfer request having type information identical to the type information of the focus request exists before the focus request and specifying data relating to the focus request as a transfer target when the management information judgment unit judges that a transfer request for management information does not exist before the focus request and when no transfer request having type information identical to the type information of the focus request exists before the focus request; and the step of setting a transfer request for management information closest to the focus transfer request, as the focus request, when the management information exists before the focus request.

On the other hand, Johnson '315 teaches a method to judge whether or not the focus request is a transfer request for management information, and on judging that the focus request is a transfer request for management information, judge with reference to the processing order whether or not a transfer request for management information exists before the focus request (i.e.-determining the priority associated with the I/O request, where the determined priority is related to a priority associated with the application that generated the I/O request, col. 1, lines 53-54, and 59-61); judging with reference to the processing order whether or not a transfer request having type information identical to the type information of the focus request exists before the focus request (i.e.-judge if the priority level of the I/O request is the first priority and defer transmission of the I/O request if it is determined that the I/O request has second priority, col. 1, 55-58) and specifying data relating to the focus request as a transfer target when the management information judgment unit judges that no transfer request for management information exists before the focus request (Note: if there are no first priority request, the I/O request with second priority is set as a first priority, col. 2, lines 9-12); and the step of setting a transfer request for management information closest to the focus transfer request, as the focus request, when the management information exists before the focus request (Note: if there are first priority I/O requests, then set the transmit the I/O requests sequentially after one another, col. 3, lines 30-38).

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Taniai et al. '665 and implement the step of judging whether or not the focus request is a transfer request for management information, and when the focus request is a transfer request for management information, judging with reference to the processing order whether or not a transfer request for management information exists before the focus request; judging with reference to the processing order whether or not a transfer request having type information identical to the type information of the focus request exists before the focus request and specifying data relating to the focus request as a transfer target when the management information judgment unit judges that a transfer request for management information does not exist before the focus request and when no transfer request having

type information identical to the type information of the focus request exists before the focus request; and the step of setting a transfer request for management information closest to the focus transfer request, as the focus request, when the management information exists before the focus request, as taught by Johnson '315. The motivation for doing so would have been in order to provide an improved technique for handling I/O requests for different applications executing within a host that is sensitive to the importance of the I/O requests generated from different applications (col. 1, lines 43-46).

As to **claim 12**, it is directed to a computer program recorded on a computer-readable medium to implement the method as set forth in claim 11. Therefore, it is rejected on the same basis as set forth above.

Response to Arguments

Applicant's arguments filed on 07/15/2008 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS MAMO whose telephone number is (571) 270-1726 and fax number (571) 270-2726. The examiner can normally be reached on Monday thru Thursday from 9 AM to 5 PM EST. The examiner can also be reached on alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Henry Tsai, can be reached on (571) 272-4176. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/E. M./
Examiner, Art Unit 2184

/Henry W.H. Tsai/
Supervisory Patent Examiner, Art Unit 2184